

**Claims**

- 5      1. Process for heat recovery in the production of 1,2-dichloroethane from chlorine and ethene by direct chlorination, characterised in that the vaporous 1,2-dichloroethane obtained from direct chlorination reactor (3) is compressed and then fed to heat exchangers for heat recovery.
- 10      2. Process according to claim 1, characterised in that the compressed 1,2-dichloroethane is fed to evaporator (6) of a light ends dehydration column (7) and/or to evaporator (8) of a heavy ends column (9) and/or to evaporator (10) of vacuum column (11) and/or to chlorine heater (16) upstream of direct
- 15      chlorination reactor (3).
- 20      3. Process according to claim 1 or 2, characterised in that the dehydration column (7) for purifying 1,2-dichloroethane, which is operated at a head pressure of 1.0 to 1.6 bars abs., is heated by providing a heat exchange between the bottom product and the compressed vapours from the direct chlorination reactor at a temperature difference of 8 and 25°C, the bottom temperature being maintained in the range of 80 to 105°C by an
- 25      adequate bottom discharge stream.

4. Process according to any of the preceding claims,  
characterised in that the heavy ends column (9) for purifying 1,2-  
dichloroethane, which is operated at a head pressure of 0.7 to 1,4 bars  
abs., is heated by providing a heat exchange between the bottom  
product and the compressed vapours from the dehydration column (7)  
at a temperature difference of 8 and 25°C, the bottom temperature  
being maintained in the range of 84 to 105°C by an adequate bottom  
discharge stream.

5. Process according to any of the preceding claims,  
characterised in that the vacuum column (11) used for purifying the  
bottom discharge stream from the heavy ends column (9) and operated  
at a head pressure of 0.2 to 0.3 bars abs. is heated by providing a heat  
exchange between the bottom product and the compressed vapours  
from the direct chlorination reactor at a temperature difference of 8 and  
25°C, the bottom temperature being maintained in the range of 80 to  
90 °C by an adequate bottom discharge stream.

6. Process according to one of the preceding claims,  
characterised in that liquid chlorine used for direct chlorination is  
evaporated and superheated by heat exchange with the compressed  
vapours from the direct chlorination reactor or by heat exchange with  
circulated liquid 1,2-dichloroethane from the direct chlorination reactor.

7. Facility for running the process according to any of the preceding  
claims,  
characterised in that a turbo-compressor (4) is used to compress the  
vapourous 1,2-dichloroethane withdrawn from the direct chlorination  
reactor (3).

8. Facility according to claim 7,  
characterised in that turbo-compressor (4) is equipped with a tandem  
type shaft seal and in that a device is provided for supplying said shaft  
seal with nitrogen as barrier gas.

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9. Facility according to claim 7 or 8,  
characterised in that a speed controller is provided to adjust the  
delivery rate of the turbo-compressor to the discharge rate of the direct  
chlorination reactor.

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